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Total Number of Pages in This Submission

54

Application Number

10/741,792

Filing Date

December 19, 2003

First Named Inventor

CHAPKO, Louis Brian

Art Unit

1638

Examiner Name

Attorney Docket Number

P06247US01

**ENCLOSURES (Check all that apply)**

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**Remarks**Attached please find Brief on Appeal (in triplicate)  
Please charge Deposit Account No. 26-0084 in the amount of \$500.00.**SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT**

Firm Name	McKEE, VOORHEES & SEASE, P.L.C.		
Signature			
Printed name	EDMUND J. SEASE		
Date	December 15, 2004	Reg. No.	24,741

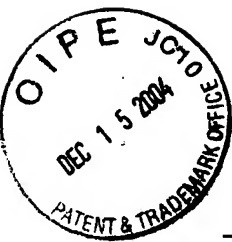
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This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

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IN RE: CHAPKO et al.	)
	)APPEAL NO. _____
SERIAL NO: 10/741,792	)
	)
FOR: INBRED MAIZE LINE PH7JD	)BRIEF ON APPEAL
	)
FILED: December 19, 2003	)
	)
	)
GROUP ART UNIT: 1638	)

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Mail Stop Appeal  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sirs and Madams:

Applicant hereby appeals to the Board of Patent Appeals and Interferences from the decision of the examiner dated August 29, 2003 and appeal the following claims: 41-42.

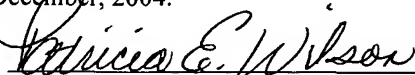
The items checked below are appropriate:

- ☐ A check in the amount of \$500.00 is enclosed.
- ☐ The Commissioner is hereby authorized to charge the extension fees to Deposit Account No. 26-0084.
- ☒ The Commissioner is authorized to charge the amount of \$500.00 and any underpayment or credit any overpayment or to Deposit Account No. 26-0084.
- ☐ A petition for an extension of time under 37 CFR 1.136(a) is enclosed.

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CERTIFICATE OF MAILING BY EXPRESS MAIL

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PATRICIA E. WILSON  
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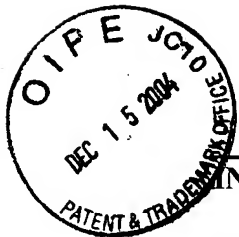
Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Steven J. Callistein".

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Attorneys of Record

RH



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

IN RE: CHAPKO et al.

)

) APPEAL NO. \_\_\_\_\_

SERIAL NO: 10/741,792

)

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FOR: INBRED MAIZE LINE PH7JD

) BRIEF ON APPEAL

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FILED: December 19, 2003

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GROUP ART UNIT: 1638

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Mail Stop Appeal  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sirs and Madams:

Please enter the following Brief on Appeal into the record.

**I. REAL PARTY OF INTEREST**

The real party of interest in the present appeal is Pioneer Hi-Bred International,  
Inc.

**II. RELATED APPEALS AND INTERFERENCES**

There are no related appeals or interferences.

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CERTIFICATE OF MAILING BY EXPRESS MAIL

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*Patricia E. Wilson*  
PATRICIA E. WILSON

Express Mail Label # EV 515454341 US

### **III. STATUS OF CLAIMS**

Claims 1-39 were originally submitted December 19, 2003. In a Preliminary Amendment dated April 2, 2004, Appellants canceled claims 2-39 and added claims 40-42. This is an appeal of the Final Rejection dated August 29, 2003, finally rejecting claims 41 and 42. Claims 1 and 40 have been allowed. The claims here appealed are claims 41 and 42.

### **IV. STATUS OF AMENDMENTS**

A Preliminary Amendment was filed on April 2, 2004. No amendments were filed subsequent to the final rejection.

### **V. SUMMARY OF CLAIMED SUBJECT MATTER**

The present invention relates to a novel inbred maize line PH7JD, including seed of said line and plants produced from this seed. The invention additionally includes the F1 hybrid seed and plants which are produced by crossing inbred maize line PH7JD with another, different maize plant. Material relevant to the appealed claims is described throughout the specification, and specifically on page 4 line 27 to page 7 line 12; page 17 lines 10-23; page 36 line 19 to page 38 line 8; and the tables on pages 44-55.

Inbred maize lines are primarily used to produce F1 hybrid seed and plants. F1 hybrid seed is produced by crossing a plant from an inbred maize line, such as PH7JD, with a plant from another inbred maize line. As described in more detail herein, PH7JD will directly contribute to the genetic composition and phenotypic characteristics of each and every F1 hybrid produced with PH7JD.

## **VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

A. Claims 41 and 42 stand rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventor had possession of the claimed invention at the time the application was filed.

B. The claims do not stand or fall together. The patentability of the claims will be argued separately.

## **VII. ARGUMENT**

**Applicants have satisfied the written description requirement by the actual reduction to practice of the claimed F1 hybrid seed and plants and by the deposit of a common identifying structural feature of the claimed F1 hybrid seed and plants.**

### **A. The Law of Written Description**

The essential test for determining whether the written description requirement has been satisfied is if one skilled in the relevant art would recognize that the Applicant had possession of the invention at the time the application was filed. *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1563, 19 U.S.P.Q.2d 1111, 1117 (Fed. Cir. 1991). In essence, "the description must clearly allow persons of ordinary skill in the art to recognize that [the Applicant] invented what is claimed." *In re Gosteli*, 872 F.2d 1008, 1012, 10 U.S.P.Q.2d 1614, 1618 (Fed. Cir. 1989).

In order to satisfy the written description requirement, Applicants "are not required to disclose every species encompassed by their claims even in an unpredictable art". *Regents of University of California v. Eli Lilly*, 119 F.3d 1559, 1569, 43 U.S.P.Q.2d 1398, 1406 (Fed. Cir. 1997) (citing as analogous argument *In re Angstadt*, 537 F.2d 498, 502-03, 190 U.S.P.Q.2d 214, 218 (Cust. & Pat. App. 1976)). Consistent with this principal, the Board of Patent Appeals & Interferences, in a case involving the written description requirement as applied to seed and plants, stated "[i]f in making the latter comment the examiner is requiring appellants to have reduced to practice each possible plant within the scope of the claims, such a position is legally incorrect. The specification need only teach one skilled in the art how to make and use the claimed invention. How the specification does so, whether by way of the written word or actual examples, is of no moment." *Ex parte Gerardu C.M. Bentvelsen et al.*, 2001 WL 1197757, p. \*2 (Bd.Pat.App. & Interf. 2001). In addition, a claim to the genus of F1 hybrids made with a patented inbred was expressly acknowledged by the U.S. Supreme Court when it stated that "...a utility patent on an inbred plant line protects the line as well as all hybrids produced by crossing that inbred with another plant line." *J.E.M. Ag. Supply, Inc. v. Pioneer Hi-Bred Int'l, Inc.*, 534 U.S. 124, 143; 122 S.Ct. 593, 604; 60 U.S.P.Q.2d 1865,1873 (2001).

An Applicant's claims are described where they set forth and define "structural features commonly possessed by members of the genus that distinguish them from others." *Regents of University of California*, 119 F.3d at 1568, 43 U.S.P.Q.2d at 1406 (emphasis added). For inventions similar to the present Applicants, "reference in the specification to a deposit in a public depository, which makes its contents accessible to

the public when it is not otherwise available in written form, constitutes an adequate description of the deposited material sufficient to comply with the written description requirement of § 112, ¶ 1." *Enzo Biochem, Inc. v. Gen-Probe Inc.*, 323 F.3d 956, 965, 63 U.S.P.Q.2d 1609, 1613 (Fed. Cir. 2002). The Board of Patent Appeals & Interferences has also confirmed the sufficiency of a deposit for seed and plants in the case of *Ex Parte C*, 1992 WL 515817 P. \* 5, 27 U.S.P.Q.2d 1492, 1496 (Bd. Pat. App. & Interf. 1992), where it stated that "[t]he claimed soybean is described in the specification to the extent that there is no question that appellant was in possession of the invention as of the time the instant application was filed. Because seed is to be deposited in a public depository, the specification is enabling and sets forth the best mode of carrying out the invention."

In addition to description by structure, the written description requirement may be satisfied by disclosing functional characteristics where there is a correlation between structure and function. The Federal Circuit has stated that the written description requirement may be met by "show[ing] that an invention is complete by disclosure of sufficiently detailed, relevant identifying characteristics . . . i.e., complete or partial structure, other physical and/or chemical properties, *functional characteristics when coupled with a known or disclosed correlation between function and structure*, or some combination of such characteristics." *Enzo Biochem, Inc.*, 323 F.3d at 964, 63 U.S.P.Q.2d at 1613 (quoting and adopting the USPTO's Written Description Guidelines, 66 Fed. Reg. 1106, No. 4 (2001)).



B. The Examiner's Conclusion of Lack of Written Description is Based on an Incorrect Application of the Law to the Claimed Invention.

The Examiner states that "[t]he description of the corn plant PH7JD is not indicative of the description of the plants and seed produced by the breeding programs and crosses, or any of its descendants." (July 30, 2002 Office Action, p.7). The Examiner further states that the specification does not describe plants produced "by crosses wherein at least one ancestor is corn variety PH7JD, other than PH7JD/PH54M. The morphological and physiological traits of the corn plants that are crossed with PH7JD, and with progeny of that cross, are unknown, and the description of progeny and descendants of corn plant PH7JD are unknown." (July 30, 2002 Office Action, p.7).

Applicants' believe that the Examiner's rejection is improper and that the written description requirement has been satisfied for several different reasons, described in detail *infra*.

(1) Applicants have demonstrated and described the actual reduction to practice of F1 hybrid seed and plants produced by crossing PH7JD with another different maize plant, thereby establishing possession of the claimed invention at the time the application was filed.

Claim 41 is drawn to F1 hybrid seed produced by crossing the inbred maize plant of claim 40 with another, different maize plant. Claim 42 is drawn to a F1 hybrid plant produced from the seed of claim 41. While the Examiner has acknowledged the reduction to practice of hybrid PH7JD/PH54M, Applicants have also provided tables of data (Tables 3A-3D, see specification pages 44-47) that demonstrate the results of

multiple hybrid combinations of PH7JD. The primary utility of an inbred is in the hybrid it will produce, and Applicants have provided ample description of the hybrids produced by PH7JD in the application as filed.

For example, see Table 3A, titled “Average Inbred by Tester Performance Comparing PH7JD to PH0CD Crossed to the Same Inbred Testers and Grown in the Same Experiments” on page 44 of the specification. As the title explains, inbred lines PH7JD and PH0CD were both crossed to a large number of common inbreds (ones that were not PH7JD or PH0CD) and the results of these crosses were evaluated and reported in this table.

Table 3A demonstrates that PH7JD, at the time that the application was filed, had been crossed to many different inbred lines in order to produce many F1 hybrid varieties. The table also shows the average scores of those F1 hybrid varieties for the 17 different traits listed. This data demonstrates that inbred PH7JD performs well in a variety of F1 hybrid crosses, a characteristic referred to by corn breeders as good general combining ability.

In addition, Table 3A shows similar results for PH0CD, a line that is not the subject of this application. The data was provided for PH0CD because such data may be used by a breeder to compare the general combining ability of PH7JD with the general combining ability of PH0CD. This combining ability data can be viewed as a trait of the inbred, much as leaf color or tassel length, and is useful data when comparing two inbred lines.

Table 3B compares inbred PH7JD with inbred PH1MR, where both inbred lines are also crossed with the same group of inbred tester lines, again producing multiple F1

hybrid combinations and reporting the average scores of these F1 hybrids. Table 3C further compares inbred PH7JD with inbred PH51H, where both lines are crossed with the same group of inbred tester lines, again producing multiple F1 hybrid combinations and reporting the average scores of these F1 hybrids. Table 3D compares inbred PH7JD with inbred PH50P, where both lines are crossed with the same tester lines, yet again producing multiple F1 hybrid combinations and reporting the average scores of these F1 hybrids. (Specification, p. 36-37, 44-47). Together, these tables clearly demonstrate the ability of PH7JD to perform well in a broad genus of F1 hybrids.

Applicants performed extensive evaluations on the hybrid progenies of PH7JD and provided the results of such evaluation in Tables 3A-3D. The results of these evaluations show that PH7JD is useful in many different F1 hybrid combinations.

In addition to the general combining ability of PH7JD as described in Tables 3A-3D, Applicants also provided data in Tables 4A-4D that compare a specific F1 hybrid produced from the cross of inbred PH7JD and inbred PH54M with various other specific F1 hybrids. (Specification, p. 37-38, 48-55). This data demonstrates the good specific combining ability of PH7JD.

As evidenced by these tables and as described in the specification on p.17 lines 10-12, hybrids produced with inbred PH7JD routinely exhibit the characteristics of high grain yield, good resistance to late season stalk lodging, and above average stay green scores.

According to the MPEP, §2163(II)(A)(3)(a)(ii), the written description requirement for a genus may be satisfied by sufficiently describing a representative number of species actually reduced to practice. Applicants have provided data in tables 3

and 4 for numerous F1 hybrid combinations made with PH7JD whose F1 hybrid seed and plants were reduced to practice as of the filing date. Accordingly, the Applicants have satisfied the written description requirement for claims 41 and 42.

(2) The genus of F1 hybrids encompassed by Applicants' claims 41 and 42 all comprise the unique set of chromosomes of inbred line PH7JD, which is an identifying structural feature possessed by all members of the claimed genus.

Applicants may fulfill the written description requirement of § 112, ¶ 1 by depositing material in a public depository, where the deposited material is not accessible in writing, and where reference to the deposit is made in the specification. *Enzo Biochem, Inc.*, 323 F.3d at 965, 63 U.S.P.Q.2d at 1613. Applicants deposited representative seed of inbred line PH7JD with the ATCC as deposit number PTA-4532. This deposit contributes to the written description of inbred maize line PH7JD of claim 1 and to the written description of a maize plant, and its parts, grown from PH7JD of claim 40. Likewise, this deposit also contributes to the written description of the F1 hybrid seed and plants of claims 41 and 42.

A hybrid made from an inbred will receive one set of chromosomes from that inbred parent. This is because the genome of a maize inbred line is homozygous. This homozygosity is a consequence of self pollination that occurs during the inbreeding process. As described in the PH7JD specification,

The inbred has been self-pollinated and ear-rowed a sufficient number of generations with careful attention paid to uniformity of plant type to ensure the *homozygosity* and phenotypic stability necessary to use in commercial production. The line has been increased both by hand and in isolated fields with continued

observation for uniformity. No variant traits have been observed or are expected in PH7JD. (Specification, p. 17, lines 15-19, emphasis added).

Exhibit 1 is a visual representation of the fact that most of the cells in a corn inbred will have two essentially duplicate sets of ten chromosomes. (For illustrative purposes the ten chromosomes are represented by three rectangles in the Exhibits). The term “essentially” is used because on a molecular level a small amount of residual heterozygosity may occur in an inbred line due to spontaneous genetic mutation or other factors. However, on a chromosomal level the identity between the two sets of chromosomes is so high that the inbred plant will breed true to type and can be used to consistently produce the same F1 hybrids from year to year.

When the inbred is used to produce an F1 hybrid, the inbred will produce a haploid cell, such as pollen or an ovule. These haploid cells will receive one the inbred’s sets of chromosomes.

As shown in Exhibits 2 and 3, when F1 hybrid seed is produced it will receive one complete set of chromosomes from the inbred parent, regardless of whether the inbred is used as the male or female parent of the F1 hybrid. Therefore, the genus of F1 hybrid seed and plants encompassed by Applicants' claims 41 and 42 all share the common structural attribute of having a complete set of the unique chromosomes of PH7JD. Stated in patent terms, it can be said that an F1 hybrid made with PH7JD *comprises* the unique chromosomes of inbred PH7JD.

The Examiner has rejected the F1 hybrid claims on the basis that, from a morphological perspective, the F1 hybrid looks visually different than the inbred. The Examiner has also stated that Applicants have failed to describe the morphological traits of all possible hybrid combinations other than PHPH7JD/PH54M. (Office action dated

7/30/2002, page 8). However, the Examiner has not considered the structural relationship between the genetics of an inbred and its F1 hybrids.

The genetic relationship between PH7JD and its F1 hybrids must be considered in evaluating the written description requirement in this case. If one were to use the criteria of morphology alone, a monarch caterpillar and a monarch butterfly would be incorrectly classified as species distinct from each another, despite the fact that they are genetically the same. While inbred PH7JD and its F1 hybrids are morphologically different from each other, each F1 hybrid made with inbred PH7JD will comprise one complete set of the unique chromosomes of inbred PH7JD, and this set of chromosomes is present within the seed of inbred line PH7JD deposited by Applicants at the ATCC.

Further, the Examiner appears to acknowledge that the written description requirement is satisfied with respect to the particular combination of PH7JD/PH54M. While PH7JD/PH54M is one specific F1 hybrid that may be produced with PH7JD, the use of PH54M is in no way required to produce an F1 hybrid with PH7JD. There are many other maize lines, both in existence and to be created, to which PH7JD may be crossed to produce an F1 hybrid. A genus of F1 hybrids may now be produced because Applicants have invented PH7JD, and Applicants should be entitled to claims encompassing this genus.

According to *Enzo*, the deposit of a material in a public depository is an adequate description of that material for purposes of the written description requirement. *Enzo Biochem, Inc.*, 296 F.3d at 1325, 63 U.S.P.Q.2d at 1613. In addition, *Regents of University of California*, 119 F.3d at 1568, 43 U.S.P.Q.2d at 1406, teaches that claims may satisfy the written description requirement where they disclose "structural features

commonly possessed by members of the genus that distinguish them from others." The unique set of chromosomes of inbred maize line PH7JD is an identifying structural characteristic present in both Applicants' seed deposit of PH7JD and the genus of F1 hybrid seed and plants produced with PH7JD.

Moreover, Applicants have described how to produce an F1 hybrid from inbred maize line PH7JD. (Specification, Page 5, lines 1-24). By virtue of the deposit of representative seed of line PH7JD, an individual would be able to grow a maize plant, and its parts, from PH7JD seed. It would be routine to cross this plant with another to produce F1 hybrid seed. A person skilled in the art would thus recognize that Applicants were in possession of F1 hybrid maize plants produced from PH7JD. Accordingly, Claims 41 and 42 are adequately described by the specification.

(3) Applicants have demonstrated possession of the invention as claimed and have fulfilled the policy goals and purposes of the written description requirement.

As stated above, the essential test of written description is whether Applicants have demonstrated possession of a claimed invention such that one skilled in the relevant art would recognize that the Applicants were the inventors of the invention as claimed. Applicants have taught that the main utility of an inbred line is to produce F1 hybrid seed and plants. (See Specification, p.15, lines 32-33). Applicants have demonstrated that PH7JD possesses the trait of good combining ability and therefore may be used in many F1 hybrid combinations. Applicants have made a deposit of inbred PH7JD that fully

enables others to make the genus of F1 hybrid seed and plants of claims 41 and 42. One skilled in the art would thus recognize that Applicants were in possession of F1 hybrid seed and plants produced from line PH7JD as of the filing date of the application.

The present facts can be distinguished from the facts in the case of *Regents of the University of California v. Eli Lilly & Co.*, 119 F.3d 1559, 43 U.S.P.Q.2d 1398 (Fed. Cir. 1997). In *Lilly*, the specification disclosed how to obtain rat insulin cDNA, and provided a prophetic example with a general method for obtaining a human cDNA. This disclosure was used as support for very broad claims to "cDNA encoding vertebrate insulin" and "cDNA encoding mammalian insulin." The Federal Circuit held that Lilly had not satisfied the written description *for that which was claimed* by Lilly. In contrast, the F1 hybrid seed and plant claims at issue in this case are of a defined and limited scope, because the F1 hybrid seed and plants were produced with inbred PH7JD. Thus, when viewed in light of the scope of that which is claimed, the present specification and deposit provide appropriate and sufficient written description.

In *Reiffin v. Microsoft Corp.*, 214 F.3d 1342, 1345, 54 U.S.P.Q.2d 1915, 1917 (Fed. Cir. 2000), the Federal Circuit reiterated that the purpose of the written description requirement is to "ensure that the scope of the right to exclude, as set forth in the claims, does not overreach the scope of the inventor's contribution to the field of art as described in the patent specification." Applicants have fulfilled this purpose of the written description requirement. Applicants have made a deposit of inbred PH7JD that fully enables others to make the genus of F1 hybrid seed and plants of claims 41 and 42, and the scope of these claims is in accord with what a plant breeder would recognize as Applicants' contribution to the field of plant breeding.



C. Conclusion as to Written Description

Applicants have demonstrated and described the actual reduction to practice of F1 hybrid seed and plants produced by crossing PH7JD with another different maize plant, thereby establishing possession of the claimed invention at the time the application was filed. In addition, the genus of F1 hybrids encompassed by Applicants' claims 41 and 42 all comprise a set of the unique chromosomes of inbred line PH7JD, which is an identifying structural feature present in the deposit of PH7JD and in any F1 hybrid made with PH7JD. Applicants have fully satisfied the legal standards for written description as set forth in case law and the written description guidelines.

Applicants have created a novel inbred line PH7JD, and by virtue of the patent deposit of PH7JD, have contributed inbred maize line PH7JD and F1 hybrids produced from PH7JD to the field of plant breeding. Applicants have enabled and described the production of the F1 seed and hybrids produced with PH7JD and are entitled to the scope of their invention as claimed.

Appellants therefore respectfully request that the Examiner's rejection under 35 U.S.C. § 112, first paragraph be reversed.

For the above-stated reasons, it is submitted that the claims are in condition for allowance. The decision of the Examiner, therefore, should be reversed and the case allowed.

Enclosed herein please find the appeal brief in triplicate and required fee of \$500. If this amount is not correct, please consider this a request to debit or credit Deposit Account No. 26-0084 accordingly.

Respectfully submitted,



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## **VIII. CLAIMS APPENDIX**

1. Seed of maize inbred line designated PH7JD, representative seed of said line having been deposited under ATCC Accession No. PTA-4532.
40. A maize plant, or parts thereof, produced by growing the seed of claim 1.
41. An F1 hybrid seed produced by crossing the inbred maize plant according to claim 40 with another, different maize plant.
42. An F1 hybrid plant, or parts thereof, grown from the seed of claim 41.

## **IX. EVIDENCE APPENDIX**

Only evidence of record has been relied upon in this appeal.

## **X. RELATED PROCEEDINGS APPENDIX**

There are no related appeals or interferences, and therefore no copies of decisions to be provided.